

REMARKS**Summary of the Office Action**

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Miyazaki et al. (US 5,978,061).

Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyazaki et al. in view of Hasegawa et al. (US 5,499,128).

Claims 5-8 stand rejected under 35 U.S.C. § 112, first paragraph.

Claims 1-8 are objected to for various informalities.

The Title of the Invention is objected to as not being descriptive.

The Abstract of the Disclosure is objected to for not clearly stating what is new in the art to which the invention pertains.

The specification is objected to as failing to provide sufficient and proper antecedent basis for the claimed subject matter recited in claims 5 and 8.

The drawings are objected to under 35 CFR 1.83(a).

Summary of the Response to the Office Action

Applicants have amended the Title of the Invention, the Abstract of the Invention, the specification, and claims 1, 3, 4, 5, and 8 to further define the invention, and added new claim 9. Accordingly, claims 1-9 are pending for consideration.

Applicants submit concurrently herewith a Submission of Replacement Drawings that amends FIG. 3 to include descriptive legends of a “contact region” and an “upper portion.” Applicants respectfully submit that the amendments to FIG. 3 do not include new matter, and fully are supported by the specification.

Objections to the Claims

Claims 1-8 are objected to for various informalities. Accordingly, Applicants have amended claims 1, 4, and 5 in accordance with the Examiner's comments. Thus, Applicants respectfully request that the objections to claim 1-8 be withdrawn.

Objection to the Title of the Invention

The Title of the Invention is objected to for not being descriptive. Accordingly, Applicants have amended the Title of the Invention to recite "LIQUID CRYSTAL DISPLAY DEVICE WITH COLUMN SPACERS." Thus, Applicants respectfully submit that the Title of the Invention is fully descriptive of the invention to which the claims are directed, and respectfully request that the objection to the Title be withdrawn.

Objection to the Abstract of the Disclosure

The Abstract of the Disclosure is objected to for not clearly stating what is new in the art to which the invention pertains. Accordingly, Applicants have amended the specification in accordance with the Examiner's comments. Thus, Applicants respectfully submit that the Abstract complies with the requirements of 37 CFR 1.72, and respectfully request that the objection to the Abstract be withdrawn.

Objections to the Specification

The specification is objected to as failing to provide sufficient and proper antecedent basis for the claimed subject matter recited in claims 5 and 8. Specifically, the Office Action alleges that the specification fails to: (1) "provide sufficient description of how to make 'each of the plurality of column spacers having a round shape at a upper portion and corresponding to two

pixel electrodes,' as recited in lines 6-8 of claim 5;" and (2) "provide sufficient description of how to form 'the contact are having a plurality of curves,' as recited in lines 2-3 of claim 8."

Accordingly, Applicants have amended the claims 5 and 8 and amended the specification in accordance with the Examiner's comments. Thus, Applicants respectfully submit that the specification complies with the requirements of 37 CFR 1.75(d)(1), and respectfully request that the objections to the specification be withdrawn.

Objections to the Drawings

The drawings are objected to under 35 CFR 1.83(a) for failing to show every feature of the invention specified in the claims. Accordingly, Applicants have amended claims 5 and 8 to recite specific features shown in the drawings. For example, claim 5 has been amended to recite "a plurality of column spacers formed on the color filter substrate, each of the plurality of column spacers having a semi-spherically shaped end portion adjacent to the TFT substrate and corresponding to two pixels," which is shown in FIGs. 3 and 4. In addition, claim 8 has been amended to recite "each of the plurality of column spacers have a contact region contacting the color filter substrate, the contact region having a square shape with at least one protrusion extending from each of four sides of the square shape," which shown in FIGs. 3 and 5.

Accordingly, Applicants respectfully submit that the drawings comply with the requirements of 35 CFR 1.83(a), and show every feature specified in claims 5 and 8. Thus, Applicants respectfully request that the objection to the drawings under 35 CFR 1.83(a) be withdrawn.

All Claims Comply with 35 U.S.C. § 112

Claims 5-8 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants respectfully disagree.

With regard to claim 5, Applicants respectfully assert that the features of the plurality of column spacers recited by amended claim 5 are fully supported and completely described at paragraphs [0043] to [0046], for example, and are clearly shown in FIGs. 3 and 4.

With regard to claim 8, Applicants respectfully assert that the features of the plurality of column spacers recited by amended claim 8 are fully supported and completely described at paragraphs [0050] and [0051], for example, and are clearly shown in FIG. 5.

Accordingly, Applicants respectfully submit that claims 5 and 8 comply with the requirements of 35 U.S.C. § 112, first paragraph. Thus, Applicants respectfully request that the rejections of claims 5 and 8 under 35 U.S.C. § 112, first paragraph, be withdrawn.

All Claims Define Allowable Subject Matter

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Miyazaki et al. (US 5,978,061), and claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Miyazaki et al. in view of Hasegawa et al. (US 5,499,128). Applicants respectfully traverse these rejections for the following reasons.

Independent claims 1 and 5, as amended, both recite an LCD device including a plurality of column spacers “having a semi-spherically shaped end portion adjacent to the other.” In contrast to Applicants’ claimed invention, Miyazaki et al. teaches various pillar-shaped spacers

33 including triangular cone-shaped spacers (in FIGs. 13A and 13B), rhombus-shaped spacers (in FIGs. 15A and 15B), trapezoidal/triangular-shaped spacers (in FIGs. 17A and 17B), and elliptical-shaped spacers (in FIG. 26). Accordingly, Applicants respectfully submit that Miyazaki et al. fails to teach or suggest a plurality of column spacers “having a semi-spherically shaped end portion adjacent to the other,” as recited by amended independent claims 1 and 5, and hence dependent claims 2-4 and 6-8, respectively. Thus, Applicants respectfully assert that the rejection under 35 U.S.C. § 102(b) should be withdrawn because Miyazaki et al. does not teach or suggest each feature of independent claims 1 and 5, and hence dependent claims 2-4 and 6-8.

Applicants further assert that the Office Action does not rely on Hasegawa et al. to remedy the deficiencies of Miyazaki et al. Moreover, Applicants respectfully assert that Hasegawa et al. cannot remedy the deficiencies of Miyazaki et al.

For at least the above reasons, Applicants respectfully submit that claims 1-8 are neither taught nor suggested by Miyazaki et al. and/or Hasegawa et al., whether taken alone or in combination. Thus, Applicants respectfully assert that the rejections under 35 U.S.C. §§ 102(b) and 103(a) should be withdrawn because the above-discussed novel combination of features are neither taught nor suggested by any of the applied references.

New Claim 9

Applicants have added new claim 9 to further define the invention. Applicants respectfully submit that new claim 9 is allowable for at least its dependency upon independent claim 1, as well as for the individual features new claim 9 recites.

CONCLUSION

In view of the foregoing, Applicants respectfully request entry of the amendments, reconsideration, and the timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of the response, the Examiner is invited to contact the Applicants' undersigned representative to expedite prosecution.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. 1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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